

Title (en)

Modular single cell and assembled cell stack of a proton exchange membrane fuel cell

Title (de)

Modulare Einzelzelle und Stack von PEM-Brennstoffzellen

Title (fr)

Pile à combustible modulaire et assemblage de piles à combustible à électrolyte polymérique solide

Publication

EP 1286408 A2 20030226 (EN)

Application

EP 02003456 A 20020214

Priority

CN 01124223 A 20010816

Abstract (en)

The present invention relates to a novel structure of a single cell module of a proton exchange membrane fuel cell (PEMFC), comprising an anode bipolar plate, a cathode bipolar plate and a membrane electrode assembly (MEA) sandwiched therebetween. The MEA is substantially disposed on a central portion between the anode and cathode bipolar plates. A desired amount of silicon rubber (RTV), by means of programmed automatic robotic arms, is applied to a circumferential portion between the anode and cathode bipolar plates to seal, cushion and position the anode bipolar plate and cathode bipolar plate under a pre-determined compression pressure after the RTV is cured, thereby forming an integral single cell module. According to the structural concept, a plurality of the single cells can be customized to form a cell unit by superimposing them in sequential order, of which an upper surface of the anode bipolar plate and/or a lower surface of the cathode bipolar plate are/is formed with grooves on their circumferential portions for receiving the RTV so as to provide a sealing, cushioning and positioning contact, and achieve an optimal compression pressure among the layered single cells. <IMAGE>

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IPC 8 full level

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CPC (source: EP US)

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Cited by

CN102288918A; CN109980245A; DE102004063247B4; KR100806101B1; CN100442589C; GB2413889A; GB2413889B; US7314680B2; US7524575B2; US7479333B2; US7531264B2; WO2005055357A1

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